

Objective 1

To measure the percentage of amalgam waste entering wastewater from the removal of dental amalgam restorations in offices equipped

A:only with conventional particle traps

B:and amalgam particle separators

Method

- Replicate typical office HVV system in a laboratory setting in order to control variables that affect recovery of amalgam that enters the system
- Chair side solids separator
- Solids separator just upstream from pump
- Container to collect all waste water

Method Continued

- Approximately 40 restorations were removed in each of 4 test runs (160) restorations.
- Weight of Amalgam removed = wt of teeth before minus weight of teeth after removal
- Weight of amalgam in chairside separator, in the pump separator, and in the waste water was measured.
- Remaining Hg conc. in waste water was measured by AAS

Results

- Average without separator
- Chairside solids separator = 31.8%
- Pump solids separator = 8.5 %
- Waste water = 59.8%
- J Canadian Dent Assoc. Jnl. Oct. 2002

Hg in Wastewater

- Without amalgam particle separator the average conc of Hg in waste water was 31.15 mg/L and with separator = 0.18 mg/L

Objective 2

- To determine the weight of amalgam removed by 7000 Dentists in Ontario, Canada
- Method
- Randomly selected 2000/6915 members
- Asked to record removal and placement for one week.
- Response of 878 dentists (44%)

Method Continued

- We determined the weight of all classes of amalgams by removing amalgams from extracted teeth and weighting before and after removal.
- We determined from the survey the number of amalgams of each class, including core buildups removed

Results

- 7000 dentists in Ontario, Canada
- Removed 2515 (2907-2106) Kg amalgam
- If no separator 1,509 Kg
- Currently 22% have separators; in Ont. about 1,509 kg enters waste.
- If all of Ont. dentists used separators 16 kg would enter waste water; ie containing 8 kg Hg.

Results continued

- Total removed annually 2515 kg
- Placed 1117 kg into previously restored teeth: less than half removed was replaced with amalgam
- Placed 707 kg into restoration in previously unrestored teeth.
- In all 690 kg more amalgam was removed than was placed